

What is claimed is:

- 1 1. A system for providing feedback to an individual patient for
2 automated remote patient care, comprising:
 - 3 a medical device regularly recording a set of measures by a medical device
4 having a sensor for monitoring at least one physiological measure of an individual
5 patient, the collected measures set comprising individual measures which each
6 relate to patient information recorded by the medical device;
 - 7 a remote client processing voice feedback into a set of quality of life
8 measures which each relate to patient self-assessment indicators, the voice
9 feedback having been spoken by the individual patient into a remote client
10 substantially contemporaneous to the collection of an identifiable device measures
11 set;
 - 12 a database collecting the set of measures from the medical device by
13 storing the collected measures set, the identified collected device measures set and
14 the quality of life measures set into a patient care record for the individual patient
15 within a database organized to store one or more patient care records which each
16 comprise a plurality of the collected measures sets, the identified collected device
17 measures set and the quality of life measures set;
 - 18 a server periodically receiving the identified collected device measures set
19 and the quality of life measures set from the medical device, and analyzing the
20 identified collected device measures set, the quality of life measures set, and one
21 or more of the collected device measures sets in the patient care record for the
22 individual patient relative to one or more other collected device measures sets
23 stored in the database to determine a patient status indicator.
- 1 2. A system according to Claim 1, further comprising:
 - 2 the server repeatedly receiving one or more collected measures sets which
3 are each recorded by a sensor which monitors at least one physiological measure
4 of the individual patient, each such sensor monitoring a site within the individual
5 patient unique from the site monitored by any other such sensor, and analyzing
6 one or more of the site specific collected measures sets in the patient care record

7 for each site within the individual patient relative to one or more other site
8 specific collected measures sets stored in the database to determine a patient
9 status indicator; and

10 the database storing each collected measures set organized by specific site
11 into the patient care record for the individual patient within the database.

1 3. A system according to Claim 2, wherein the one or more site
2 specific collected measures sets and the one or more other site specific collected
3 measures sets both store measures collected from the same relative site.

1 4. A system according to Claim 2, wherein the one or more site
2 specific collected measures sets and the one or more other site specific collected
3 measures sets both store measures collected from a different site.

1 5. A system according to Claim 1, the remote client further
2 comprising:

3 an audio prompter requesting a quality of life measure via a voice prompt
4 played on the remote client to the individual patient.

1 6. A system according to Claim 5, further comprising:
2 a written script comprising a plurality of quality of life measure requests
3 stored within the remote client; and
4 the audio prompter further comprising a speech synthesizer module
5 retrieving each quality of life request from the stored written script with each such
6 retrieved quality of life measure request comprising one such voice prompt and
7 synthesizing speech for playback from the retrieved quality of life request.

1 7. A system according to Claim 5, further comprising:
2 pre-recorded speech comprising a plurality of quality of life measure
3 requests stored within the remote client; and
4 the audio prompter further comprising a playback module retrieving each
5 quality of life request from the stored pre-recorded speech with each such

6 retrieved quality of life measure request comprising one such voice prompt and
7 playing the pre-recorded speech from the retrieved quality of life request.

1 8. A system according to Claim 1, the remote client further
2 comprising:

3 a speech engine recognizing individual words in the spoken voice
4 feedback and translating the individual spoken words into written individual
5 words.

1 9. A system according to Claim 8, further comprising:
2 a voice grammar stored within the remote client, the voice grammar
3 comprising a plurality of speech phrases expressed in a natural language, each
4 speech phrase corresponding to a normalized quality of life measure;

5 the speech engine further comprising:
6 a parser parsing the written individual words into tokens; and
7 a lexical analyzer performing a lexical analysis of the parsed
8 tokens in accordance with the voice grammar to identify one such normalized
9 quality of life measure.

1 10. A system according to Claim 8, further comprising:
2 a vocabulary stored within the remote client, the vocabulary comprising
3 the written individual words; and
4 the speech engine further comprising a lookup module performing
5 a lookup of the written individual words from the vocabulary stored within the
6 remote client.

1 11. A system according to Claim 1, the remote client further
2 comprising:
3 wherein the remote client comprises at least one of a personal computer,
4 an audio interface, and a telephony instrument.

1 12. A method for providing feedback to an individual patient for
2 automated remote patient care, comprising:

3 regularly recording a set of measures by a medical device having a sensor
4 for monitoring at least one physiological measure of an individual patient, the
5 measures set comprising individual measures which each relate to patient
6 information recorded by the medical device;

7 collecting the measures set from the medical device;
8 processing voice feedback into a set of quality of life measures which each
9 relate to patient self-assessment indicators, the voice feedback having been
10 spoken by the individual patient into a remote client substantially
11 contemporaneous to the collection of an identifiable device measures set;

12 storing the collected measures set, the identified collected device measures
13 set and the quality of life measures set into a patient care record for the individual
14 patient within a database organized to store one or more patient care records
15 which each comprise a plurality of the collected measures sets, the identified
16 collected device measures set and the quality of life measures set;

17 periodically receiving the identified collected device measures set and the
18 quality of life measures set from the medical device;

19 analyzing the identified collected device measures set, the quality of life
20 measures set, and one or more of the collected device measures sets in the patient
21 care record for the individual patient relative to one or more other collected
22 device measures sets stored in the database to determine a patient status indicator.

1 13. A method according to Claim 12, further comprising:

2 repeatedly receiving one or more collected measures sets which are each
3 recorded by a sensor which monitors at least one physiological measure of the
4 individual patient, each such sensor monitoring a site within the individual patient
5 unique from the site monitored by any other such sensor;

6 storing each collected measures set organized by specific site into the
7 patient care record for the individual patient within the database; and

8 analyzing one or more of the site specific collected measures sets in the
9 patient care record for each site within the individual patient relative to one or
10 more other site specific collected measures sets stored in the database to
11 determine a patient status indicator.

1 14. A method according to Claim 13, wherein the one or more site
2 specific collected measures sets and the one or more other site specific collected
3 measures sets both store measures collected from the same relative site.

1 15. A method according to Claim 13, wherein the one or more site
2 specific collected measures sets and the one or more other site specific collected
3 measures sets both store measures collected from a different site.

1 16. A method according to Claim 12, the operation of processing voice
2 feedback further comprising:

3 requesting a quality of life measure via a voice prompt played on the
4 remote client to the individual patient.

1 17. A method according to Claim 16, the operation of requesting a
2 quality of life measure further comprising:

3 storing a written script comprising a plurality of quality of life measure
4 requests within the remote client;

5 retrieving each quality of life request from the stored written script with
6 each such retrieved quality of life measure request comprising one such voice
7 prompt; and

8 synthesizing speech for playback from the retrieved quality of life request.

1 18. A method according to Claim 16, the operation of requesting a
2 quality of life measure further comprising:

3 storing pre-recorded speech comprising a plurality of quality of life
4 measure requests within the remote client;

5 retrieving each quality of life request from the stored pre-recorded speech
6 with each such retrieved quality of life measure request comprising one such
7 voice prompt; and

8 playing the pre-recorded speech from the retrieved quality of life request.

1 19. A method according to Claim 12, the operation of processing voice
2 feedback further comprising:

3 recognizing individual words in the spoken voice feedback; and
4 translating the individual spoken words into written individual words.

1 20. A method according to Claim 19, further comprising:
2 storing a voice grammar within the remote client, the voice grammar
3 comprising a plurality of speech phrases expressed in a natural language, each
4 speech phrase corresponding to a normalized quality of life measure;
5 parsing the written individual words into tokens; and
6 performing a lexical analysis of the parsed tokens in accordance with the
7 voice grammar to identify one such normalized quality of life measure.

1 21. A method according to Claim 19, further comprising:
2 storing the written individual words as a vocabulary within the remote
3 client; and
4 performing a lookup of the written individual words from the vocabulary
5 stored within the remote client.

1 22. A method according to Claim 12, wherein the remote client
2 comprises at least one of a personal computer, an audio interface, and a telephony
3 instrument.

1 23. A computer-readable storage medium holding code for providing
2 feedback to an individual patient for automated remote patient care, comprising:
3 code for regularly recording a set of measures by a medical device having
4 a sensor for monitoring at least one physiological measure of an individual
5 patient, the collected measures set comprising individual measures which each
6 relate to patient information recorded by the medical device;
7 code for collecting the set of measures from the medical device;
8 code for processing voice feedback into a set of quality of life measures
9 which each relate to patient self-assessment indicators, the voice feedback having
10 been spoken by the individual patient into a remote client substantially
11 contemporaneous to the collection of an identifiable device measures set;

12 code for storing the collected measures set, the identified collected device
13 measures set and the quality of life measures set into a patient care record for the
14 individual patient within a database organized to store one or more patient care
15 records which each comprise a plurality of the collected measures sets, the
16 identified collected device measures set and the quality of life measures set;

17 code for periodically receiving the identified collected device measures set
18 and the quality of life measures set from the medical device;

19 code for analyzing the identified collected device measures set, the quality
20 of life measures set, and one or more of the collected device measures sets in the
21 patient care record for the individual patient relative to one or more other
22 collected device measures sets stored in the database to determine a patient status
23 indicator.

1 24. A storage medium according to Claim 23, further comprising:

2 code for repeatedly receiving one or more collected measures sets which
3 are each recorded by a sensor which monitors at least one physiological measure
4 of the individual patient, each such sensor monitoring a site within the individual
5 patient unique from the site monitored by any other such sensor;

6 code for storing each collected measures set organized by specific site into
7 the patient care record for the individual patient within the database; and

8 code for analyzing one or more of the site specific collected measures sets
9 in the patient care record for each site within the individual patient relative to one
10 or more other site specific collected measures sets stored in the database to
11 determine a patient status indicator.

1 25. A storage medium according to Claim 24, wherein the one or more
2 site specific collected measures sets and the one or more other site specific
3 collected measures sets both store measures collected from the same relative site.

1 26. A storage medium according to Claim 24, wherein the one or more
2 site specific collected measures sets and the one or more other site specific
3 collected measures sets both store measures collected from a different site.

1 27. A storage medium according to Claim 23, the operation of
2 processing voice feedback further comprising:
3 code for requesting a quality of life measure via a voice prompt played on
4 the remote client to the individual patient.

1 28. A storage medium according to Claim 27, the operation of
2 requesting a quality of life measure further comprising:
3 code for storing a written script comprising a plurality of quality of life
4 measure requests within the remote client;
5 code for retrieving each quality of life request from the stored written
6 script with each such retrieved quality of life measure request comprising one
7 such voice prompt; and
8 code for synthesizing speech for playback from the retrieved quality of life
9 request.

1 29. A storage medium according to Claim 27, the operation of
2 requesting a quality of life measure further comprising:
3 code for storing pre-recorded speech comprising a plurality of quality of
4 life measure requests within the remote client;
5 code for retrieving each quality of life request from the stored pre-
6 recorded speech with each such retrieved quality of life measure request
7 comprising one such voice prompt; and
8 code for playing the pre-recorded speech from the retrieved quality of life
9 request.

1 30. A storage medium according to Claim 23, the operation of
2 processing voice feedback further comprising:
3 code for recognizing individual words in the spoken voice feedback; and
4 code for translating the individual spoken words into written individual
5 words.

1 31. A storage medium according to Claim 30, further comprising:

2 code for storing a voice grammar within the remote client, the voice
3 grammar comprising a plurality of speech phrases expressed in a natural
4 language, each speech phrase corresponding to a normalized quality of life
5 measure;

6 code for parsing the written individual words into tokens; and

7 code for performing a lexical analysis of the parsed tokens in accordance
8 with the voice grammar to identify one such normalized quality of life measure.

1 32. A storage medium according to Claim 30, further comprising:

2 code for storing the written individual words as a vocabulary within the
3 remote client; and

4 code for performing a lookup of the written individual words from the
5 vocabulary stored within the remote client.